03050201-070

(Goose Creek)

General Description

Watershed 03050201-070 is located in Berkeley, Charleston, and Dorchester Counties and consists primarily of ***Goose Creek*** and its tributaries. The watershed occupies 38,766 acres of the Lower Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Bohicket-Bladen-Wahee-Yonges series. The erodibility of the soil (K) averages 0.15 and the slope of the terrain averages 1%, with a range of 0-2%. Land use/land cover in the watershed includes: 41.7% urban land, 45.0% forested land, 4.5% nonforested wetland, 2.6% scrub/shrub land, 2.6% agricultural land, 2.1% forested wetland, 1.4% water, and 0.1% barren land.

Ancrum Swamp and Huckhole Swamp flow into Bluehouse Swamp (Ladson Branch, McChune Branch) to form the headwaters of Goose Creek, which is dammed into Goose Creek Reservoir and used for recreation and water supply. Goose Creek is classified FW from its headwaters to the Goose Creek Reservoir Dam, and SB downstream from the reservoir. Turkey Creek (SB) flows into Goose Creek downstream of the reservoir near the Town of Hanahan. Old Goose Creek drains into Goose Creek as does New Tenant Pond, Brown Pond, and Logan Pond before it flows into the Cooper River. The entire watershed is within the U.S. Naval Reserve. There are a total of 44.1 stream miles, 589.7 acres of lake waters, and 364.3 acres of estuarine areas in this watershed.

Surface Water Quality

Station #	Type	Class	Description
MD-114	P/W	FW	GOOSE CREEK AT U.S. 52 N CHARLESTON
RL-01008	RL01	FW	GOOSE CREEK RESERVOIR, 2.3 MI S OF GOOSE CREEK TOWN CENTER
ST-033/CL-050	W	FW	GOOSE CREEK RES. AT 2ND POWER LINES UPSTREAM OF BOAT RAMP
ST-032/CL-049	P/SPRP	FW	GOOSE CREEK RESERVOIR 100 M UPSTREAM OF DAM
MD-039	P/INT	SB	GOOSE CREEK AT S-08-136 BRIDGE

Goose Creek **-** There are two SCDHEC monitoring sites along Goose Creek. Aquatic life uses are not supported at the upstream site ***(MD-114)*** due to dissolved oxygen excursions, which are compounded by a significant decreasing trend in dissolved oxygen concentration. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, and total nitrogen concentration suggest improving conditions for these parameters. There is a significant increasing trend in pH. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Aquatic life uses are fully supported at the downstream site ***(MD-039)***, and significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. There is a significant increasing trend in pH. Recreational uses are not supported at this site due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Goose Creek Reservoir - There are three SCDHEC monitoring sites along Goose Creek Reservoir. Recreational uses are fully supported at all sites. Aquatic life uses are partially supported at the upstream site ***(RL-01008)*** due to dissolved oxygen excursions. At the midstream site ***(ST-033),*** aquatic life uses are not supported due to excursions in pH, total phosphorus, chlorophyll-*a*, and copper. At the furthest downstream site ***(ST-032),*** aquatic life uses are not supported due to excursions in pH, total phosphorus, and chlorophyll-*a*. A significant increasing trend in dissolved oxygen concentration suggests improving conditions for this parameter. There is a significant increasing trend in pH at this site. To abate aquatic plant growth in the reservoir, aquatic herbicides were applied from 1998-2005.
A fish consumption advisory has been issued by the Department for mercury and includes Goose Creek Reservoir within this watershed (see advisory p.69).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
GOOSE CREEK CHARLESTON CPW/HANAHAN WTP PIPE #: 001 FLOW: M/R	SCG645043 MINOR DOMESTIC (SC0040266)

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
M&S DEVELOPMENT CO. INDUSTRIAL	IWP-136 --------
G&S ROOFING PRODUCTS INDUSTRIAL	102434-1601 (IWP-046, IWP-162) ACTIVE
ROBERT O. COLLINS C/C LANDFILL CONSTRUCTION	102407-1201 (CWP-039) ---------
PEPPERHILL DEVELOPMENT C&D CONSTRUCTION	182441-1201 (182441-1601) ACTIVE
S.C. PUB. SERV. AUTH./CHARLESTON MUNICIPAL	DWP-004 CLOSED
WESTVACO/CHARLESTON CO. INDUSTRIAL	--------- CLOSED

Land Application Sites

LAND APPLICATION ***FACILITY NAME***	***PERMIT #*** ***YPE***

SPRAYFIELD	ND0073491
CHARLESTON CPW/HANAHAN WTP	DOMESTIC

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
BANKS CONSTRUCTION COMPANY LAKEVIEW MINE	0488-19 SAND/CLAY
ROBERT O. COLLINS COMPANY, INC. SPRINGROVE MINES	0595-19 SAND/CLAY

Water Quantity

WATER USER ***STREAM***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
CITY OF CHARLESTON	10.0
GOOSE CREEK RESERVOIR	10.0

Growth Potential

The primary population growth areas in this watershed include the Town of Hanahan, North Charleston, and Berkeley County. In addition, the Charleston County Parks and Recreation Commission has purchased a large parcel of land above Goose Creek Reservoir for development as a county park. The interbasin transfer of fresh water via a pipeline connecting the Edisto River to the Hanahan WTP will help to provide for growth in this area.

Watershed Protection and Restoration

Total Maximum Daily Loads (TMDLs)

Two TMDLs addressing dissolved oxygen were developed by SCDHEC for the ***Charleston Harbor Estuary:*** one covering the Ashley River and the other covering the Charleston Harbor, the Cooper River, and the Wando River. The Harbor/Cooper River/Wando River portion of the system (consisting of the Tail Race Canal, West Branch Cooper River, East Branch Cooper River, Shipyard Creek, Town Creek, Back River, Goose Creek, Wando River and Charleston Harbor) is not considered to be impaired with respect to dissolved oxygen (with the exception of the Wando River monitoring site MD-115); however, available information indicates much of the system does not meet the applicable water quality standard for dissolved oxygen for significant periods of time and is considered water quality limited for the purposes of wasteload allocation (WLA) development. WLAs are an integral part of a TMDL, and although not always developed through the TMDL process, the Department and EPA have chosen to use the TMDL process to develop WLAs for the Charleston Harbor system (see following section). Results of a water quality model indicate the need for a 70% reduction in discharge of oxygen demanding substances to the overall system. A phased approach to achieving these reductions is proposed with an initial Phase I reduction of 60%. For more detailed information on TMDLs, please visit

the SCDHEC's Bureau of Water homepage at http://www.scdhec.gov/water and click on "Watersheds and TMDLs" and then "TMDL Program".

Special Models

Charleston Harbor System TMDLs

The modeling efforts for Charleston Harbor and its tributaries have been completed and phased TMDLs for the Ashley and the Cooper systems have been issued by the Department and approved by EPA Region 4. Interim TMDL limits were included in NPDES permits for a number of dischargers while final TMDL limits were included for some dischargers who were already meeting the final limits. Permits included compliance schedules that allowed the opportunity for additional modeling work to be completed before compliance with final limits is required. A group of dischargers working through the local Councils of Government has initiated another modeling effort that is currently underway. If this effort is successfully completed within the allotted time, the existing TMDLs will be revised and, as appropriate, new limits incorporated into NPDES permits for discharges covered by the TMDL.

Special Projects

Goose Creek Reservoir Restoration

Goose Creek Reservoir is located in Berkeley County, north of the City of Charleston. Nuisance aquatic plant growth and fish kills, as a result of low dissolved oxygen, have occurred. Various activities have focused on eliminating the excess vegetation. The S.C. Department of Natural Resources, in implementing the recommendations of the S.C. Aquatic Plant Management Council, has used chemical treatments and sterile grass carp with positive results. SCDHEC's OCRM, in cooperation with the local Soil and Water Conservation District, have used §319 funds to remove other masses of vegetation and open up more of the reservoir for enhanced circulation and re-aeration of the water surface. As of 2004, the Goose Creek Reservoir meets standards for dissolved oxygen at all monitoring locations.